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(54) Model building panels and connection members therefor

(57) Apparatus for use in the construction of a model or toy building, comprises a plurality of connection members (Figure 1—not shown) in the form of elongate strips having one or more longitudinal channels provided therein and a plurality of construction panels (Figure 2—not shown), of rectangular or triangular shape and which, in use, have their edges located in the channels. The channels and panel edges may form a dovetail interfit. Transparent window and door panels may be provided.

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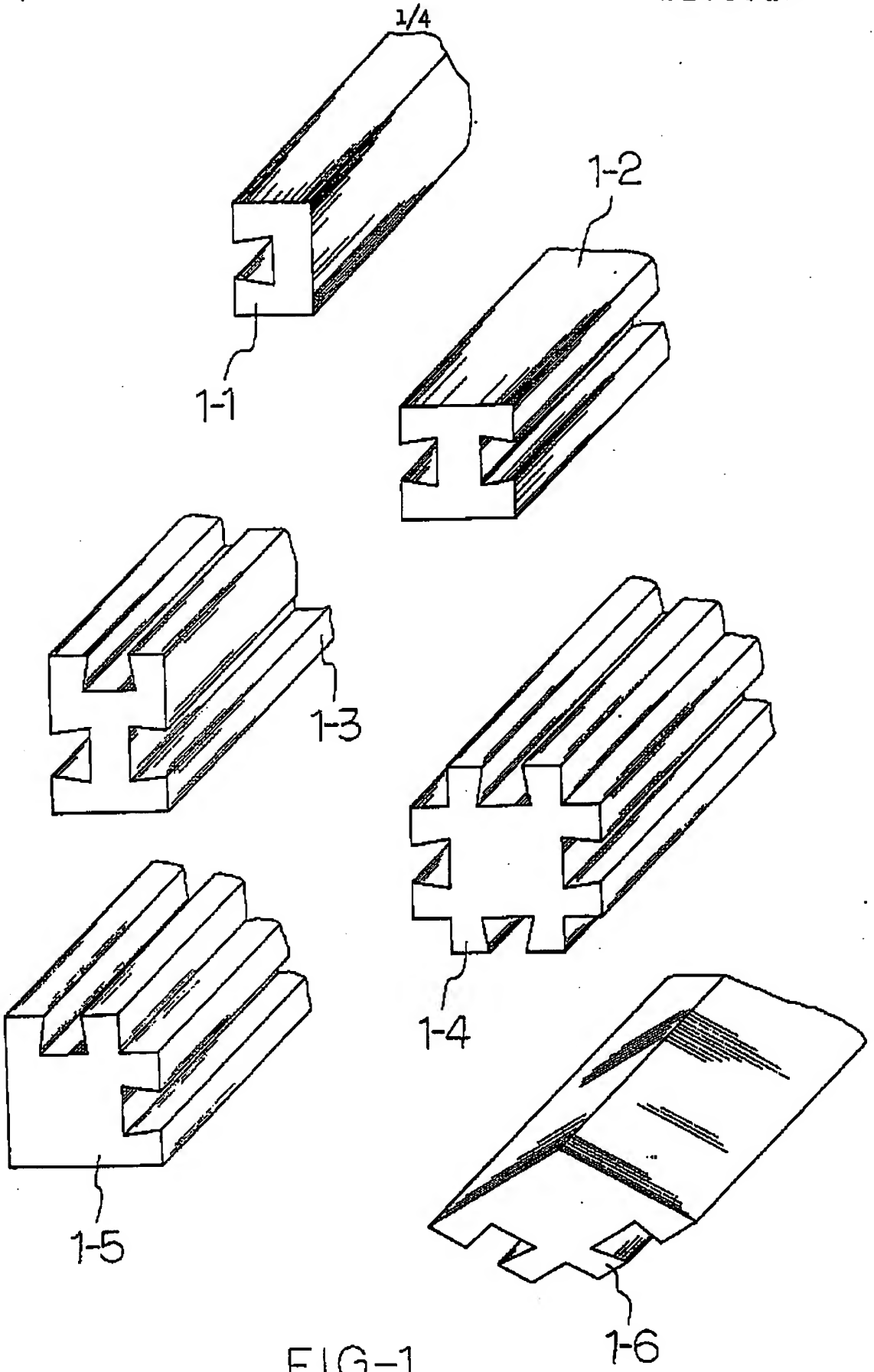


FIG-1

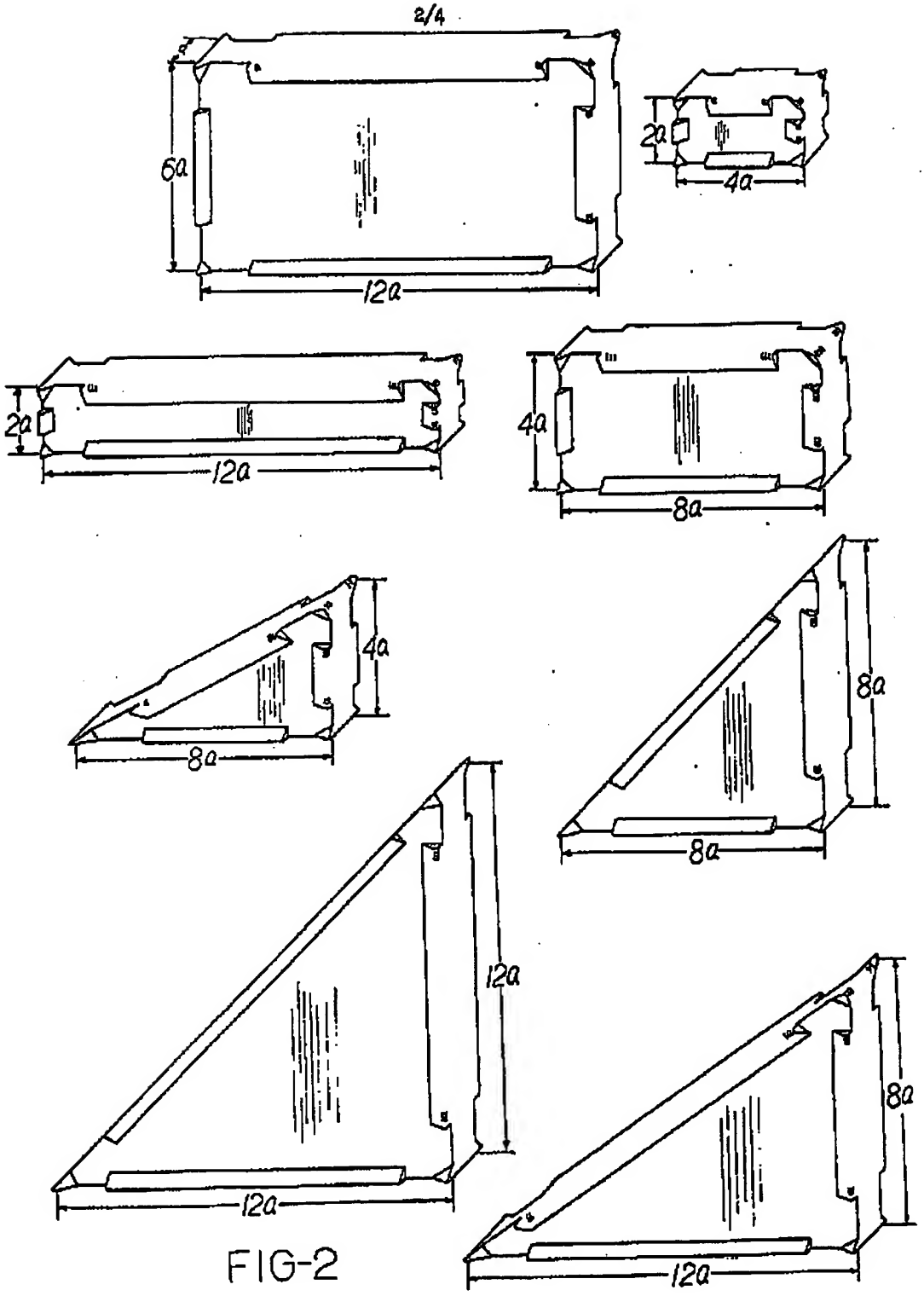


FIG-2

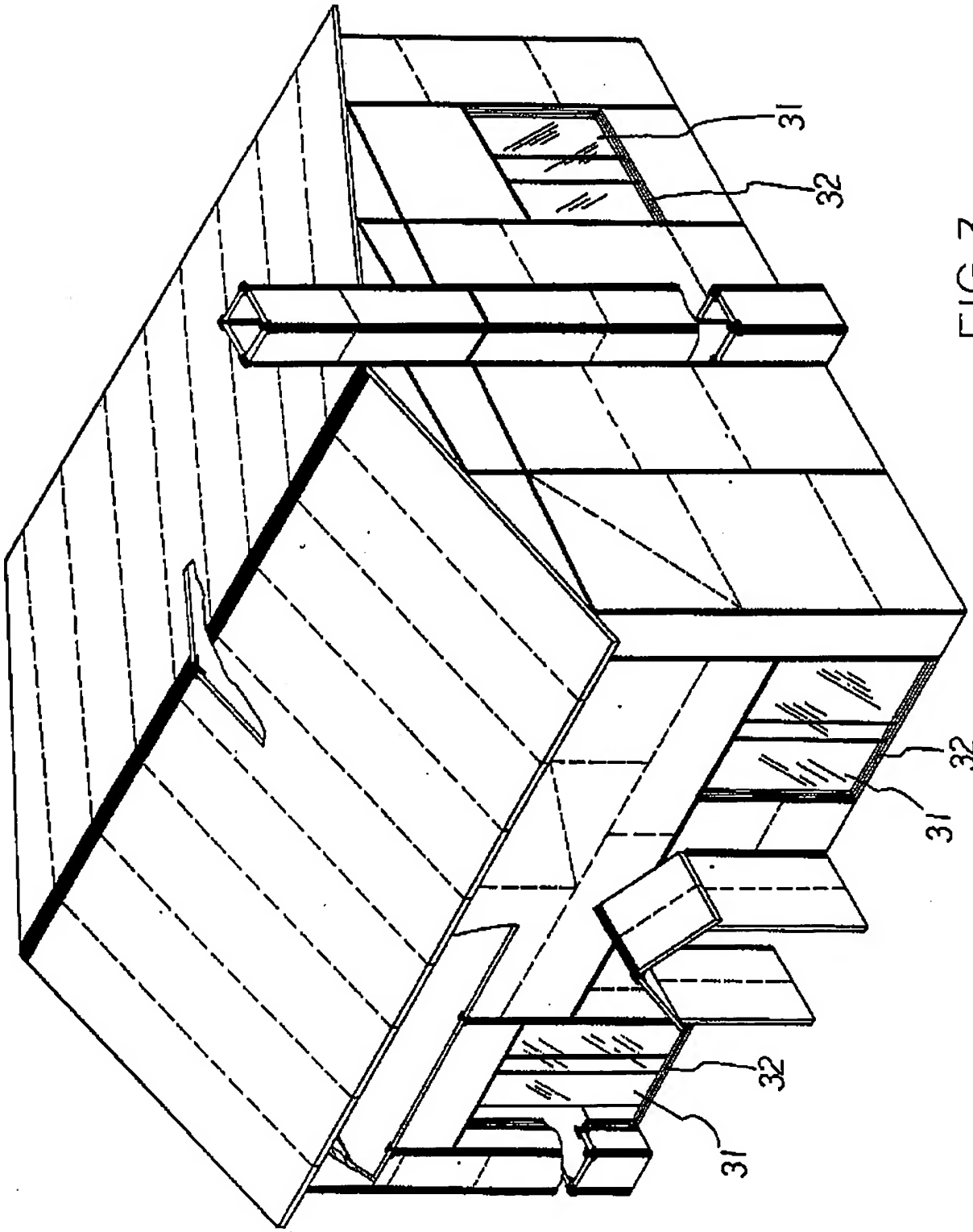


FIG-3

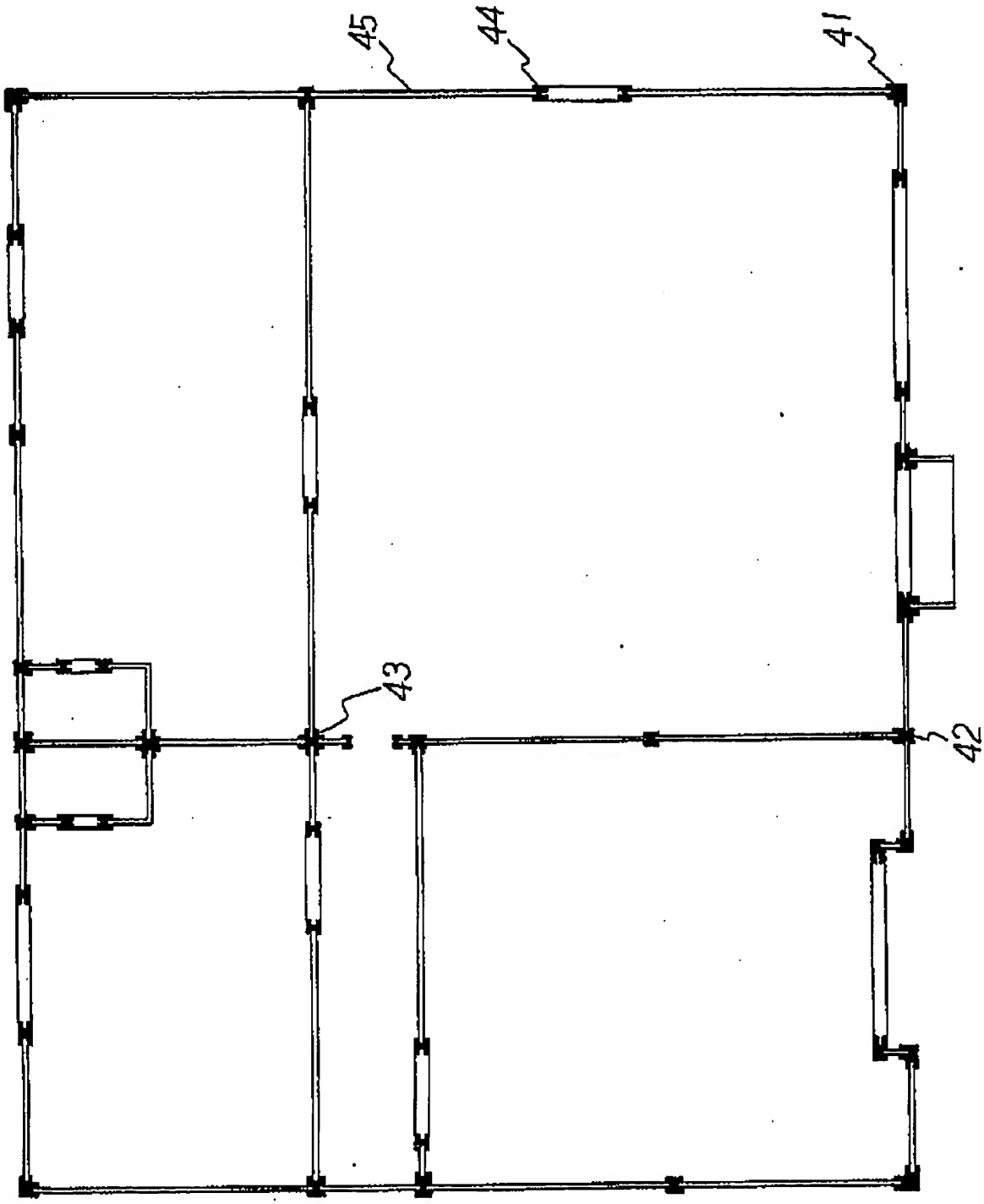


FIG 4

SPECIFICATION

Model building or construction panels or blocks and connection members therefor

The present invention relates to model building or construction panels or blocks and connection or interconnection members therefor.

The present invention relates to a type of construction known as "Educational practical building blocks" and comprises elements of a variety of connection structures which are in the form of elongated strips and a variety of rectangular and triangular building elements of a uniform thickness, which may be built into a variety of hollow configurations of model buildings having house-like frameworks by the user's own intelligence. The construction can successfully achieve both amusement and education to invigorate the user's intelligence, and the hollow space contained within the framework produced by such construction can be utilised to display model small domestic articles, books, paper articles, pieces of furniture, or other articles usually found in or adjacent a house, in model form.

Although conventional toy or model construction blocks are numerous, when they are used to form buildings, the majority of such blocks are often of a solid, thick structure. However, such construction blocks can only provide the children with simple educational and recreational functions in assembly and disassembly operations; therefore, in order that such construction blocks exploit much wider uses depends on further research and development.

Now, through repeated studies, it has eventually been discovered that building blocks which utilise less materials in the construction of a model building, provides a larger central hollow configuration. In such central hollow space of said model, various miniature articles can be displayed, thereby providing both educational and recreational functions as well as the usual practical functions.

The main object of the present invention is to educate children to a better understanding of the structure of buildings and also to inspire their interests in building activities.

Another object of the present invention is to provide children with opportunities to combine and erect the elements in a simple structure into buildings in any configurations as they wish by themselves without the need for any additional persons or tools, thereby cultivating their "do-it-yourself" habit and originality.

A further object of the present invention is to form the strip-type connection structures in a variety of shapes by merely cutting them into various lengths with no need to exclusively make any molds to manufacture them separately, thereby saving the manufacture costs and thus reducing the consumer's costs.

Still a further object of the present invention is to form the connection strips in different lengths and to provide bevel protrusions and a trapezoidal concave slot therein so that the building panels which may be provided with corresponding shaping, can be firmly and securely located therein in a dove-tail arrangement. The elements can thus be mutually staggered and erected to form structures of substantial strength and can even be erected to form multi-storey or variable model buildings.

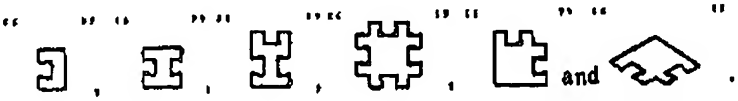
The present invention provides a type of construction panel or block arrangement which can be combined into a variety of model buildings of different shapes by means of connection structures in strip form and building elements in board or panel form and of rectangular and triangular shape. Such building elements and connecting structures can be combined to produce hollow configurations, whereby it is possible to display various model pieces within the central hollow space.

According to the present invention there is provided apparatus for use in the construction of a model or toy building, comprising a plurality of connection members in the form of elongate strips and having one or more longitudinal channels or slots provided therein and a plurality of construction panels or boards of rectangular or triangular shape and which, in use, are locatable in said connection members.

Preferably, said connection members are provided with one or more trapezoidal channels or slots and in which the ends of said construction panels or boards which, in use, are locatable therein, are provided with a corresponding bevel protrusion to match said trapezoidal channel or slot, whereby the construction panel or board and its associated connection members are secured to one another in a dovetail arrangement.

Desirably, the length and width and each construction panel or board is a multiple of its thickness.

Further preferably, the connection members have cross-sections selected from



The present invention will be further illustrated, by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 shows six fragmentary perspective views of connection members utilisable in accordance with the present invention;

Fig. 2 shows eight perspective views of construction panels or boards utilisable in accordance with the present invention;

Fig. 3 schematically illustrates a model building constructed from connection members and construction panels in accordance with the present invention; and

Fig. 4 is a plan view of a portion of a model building constructed in accordance with the present invention showing the various connection members and construction panels utilised.

As illustrated in Fig. 1:

1—1 is a " " -shaped 

connection element for use in providing connections at wall sides or wall ends in a unidirectional manner.

1—2 is a " " -shaped 

connection element for providing parallel two-directional connection when forming extensions along the wall edges or floor.

1—3 is a " " -shaped 

connection element for providing three-directional vertical connections when forming three-faced three-dimensional extensions along the wall edges or along partitions.

1—4 is a " " -shaped 

connection element for providing four-directional vertical connections when forming four-faced three-dimensional extensions along the wall edges or partitions.

1—5 is a " " -shaped 

connection element for providing vertical two-directional connection along the wall corners or house corners.

1—6 is a " " -shaped 

connection element for providing 120° and two-directional connections at the ridges of the roof top beams.

The members illustrated in Fig. 1 show the six kinds of connection elements which can be utilised in constructing a model building in accordance with the present invention.

The channels or slots provided in the connection members are shaped, preferably to be of trapezoidal form, so as to ensure that correspondingly shaped construction panels in accordance with the invention can be slotted therein and be firmly held in position.

The connection elements have channels or slots of substantially the same size which correspond to the thickness of the construction panels utilised. Such arrangement ensures that the connection members are interchangeable, depending upon the type of connection desired when constructing a building. Furthermore, the connection members can be provided in any length desired and it is envisaged that various different lengths of each type of connection member would be available to a user. The lengths of the various construction panels will vary depending upon the particular purpose intended. The length of a particular panel or board will be a multiplication of its thickness. The lengths of the six types of connection elements will be made to correspond to the various lengths of the respective construction panels.

Fig. 2 shows eight types of construction panels or boards, in which "a" indicates the thickness of each panel. As illustrated, the length and width of the rectangular panels or boards are multiples of the thickness of the panel or board. Also, the width of the bottom of the triangular panel or board and the height of the same panel or board are also the same as those of the rectangular panel or board, again being a multiple of the thickness of the panel or board.

On the edge of each construction panel which is to be connected to a connection member, a slight bevel protrusion is provided to match the trapezoidal concave slot in the respective connection member, said bevel protrusion and trapezoidal concave slot make a dovetail connection which ensures that the construction panel or board will be firmly secured to the associated connection member.

The rectangular construction panels or boards are used to serve as the wall face or roof top or floor, while the triangular panels or boards are used to connect the triangular wall faces on both sides under the roof.

Fig. 3 illustrates a toy house constructed in accordance with the invention. In addition to the construction panels or boards previously referred to, the door and window (31) are made of transparent plastic panels or boards and formed into rectangles of a thickness which is less than one half the thickness of the panel or board distance of the

" "  connection element,

so as to let the door and windows freely open and close along a pivot rim (32). The pivot rim (32) is formed by the pivoted installation of an

" "  -shaped connection element.

In the central hollow space provided in the construction apparatus of the present invention, various toy daily necessities, mini-furniture pieces, papers or small toys can be set from the door and windows and be displayed in said hollow space.

Fig. 4 is a plan view of an example of a construction accordance to the present invention, in which:

(41) indicates the " "  -shaped connection mechanism;

(42) indicates the " "  -shaped connection mechanism;

(43) indicates the " "  -shaped connection mechanism;

(44) indicates the " "  -shaped connection mechanism;

(45) indicates a construction panel or board.

It can thus be seen that the present invention provides an apparatus for constructing a model building which can be of any desired shape or length by the utilisation of a plurality of rectangular or triangular panels or boards of various lengths which, in use, are connected to a plurality of elongated strip-like connection members having one or more channels or slots formed therein. Again, such connection members can be of any selected length. In addition, transparent doors and window elements can also be utilised, which have a thickness which is less than one half the thickness of the construction panels or boards.

The apparatus in accordance with the present invention permits multi-storey buildings to be constructed, the building so constructed being of substantial strength and having a large central hollow space therein which enables various devices to be located within the housing constructed which enables educational and practical model or toy construction arrangements to be obtained.

CLAIMS

1. Apparatus for use in the construction of a model or toy building, comprising a plurality of connection members in the form of elongate strips and having one or more longitudinal channels or slots provided therein and a plurality of construction panels or boards of rectangular or triangular shape and which, in use are locatable in said connection members.

2. Apparatus as claimed in claim 1, in which said connection members are provided with one or more trapezoidal channels or slots and in which the ends of said construction panels or boards which, in use, are locatable therein, are provided with a corresponding bevel protrusion to match said trapezoidal channel or slot, whereby the construction panel or board and its associated connection members are secured to one another in a dovetail arrangement.

3. Apparatus as claimed in claim 1 or 2, in which the length and width of each construction panel or board is a multiple of its thickness.

4. Apparatus as claimed in any preceding claim, in which the connection elements are of different lengths and the construction panel or boards are of different lengths.

5. Apparatus as claimed in any preceding claim, in which the construction panels or boards have the same thickness which corresponds to the maximum width of the channel or channels provided in said connection members.

6. Apparatus as claimed in any preceding claim, additionally including transparent door and window

members having a thickness which is less than one half of the thickness of the construction panels or boards.

7. Apparatus as claimed in any preceding claim, in which the connection members have cross-sections selected from

as shown in Fig. 1 of the drawings.

8. Apparatus as claimed in any preceding claim, in which the rectangular and triangular construction panels or boards have the shapes as illustrated in Fig. 2 of the drawings.

9. Apparatus for constructing a model or toy building, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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